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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/532,786	03/22/2000	Nobuhiko Hayashi	000351	8588

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EXAMINER

NGUYEN, TUAN M

ART UNIT	PAPER NUMBER
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2828

DATE MAILED: 07/12/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/532,786

Applicant(s)

HAYASHI ET AL.

Examiner

Tuan M Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 22 March 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

  
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## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Drawings*

1. The drawing (figs 1-7b) is objected for minor informaty. The boxes show in figures 1-7b are not labeled as required by 37 CFR 1.83(a). Applicant is required to submit a drawing correction for approval as require by rule 37 CFR 1.123

### *Claim Rejections - 35 USC § 102*

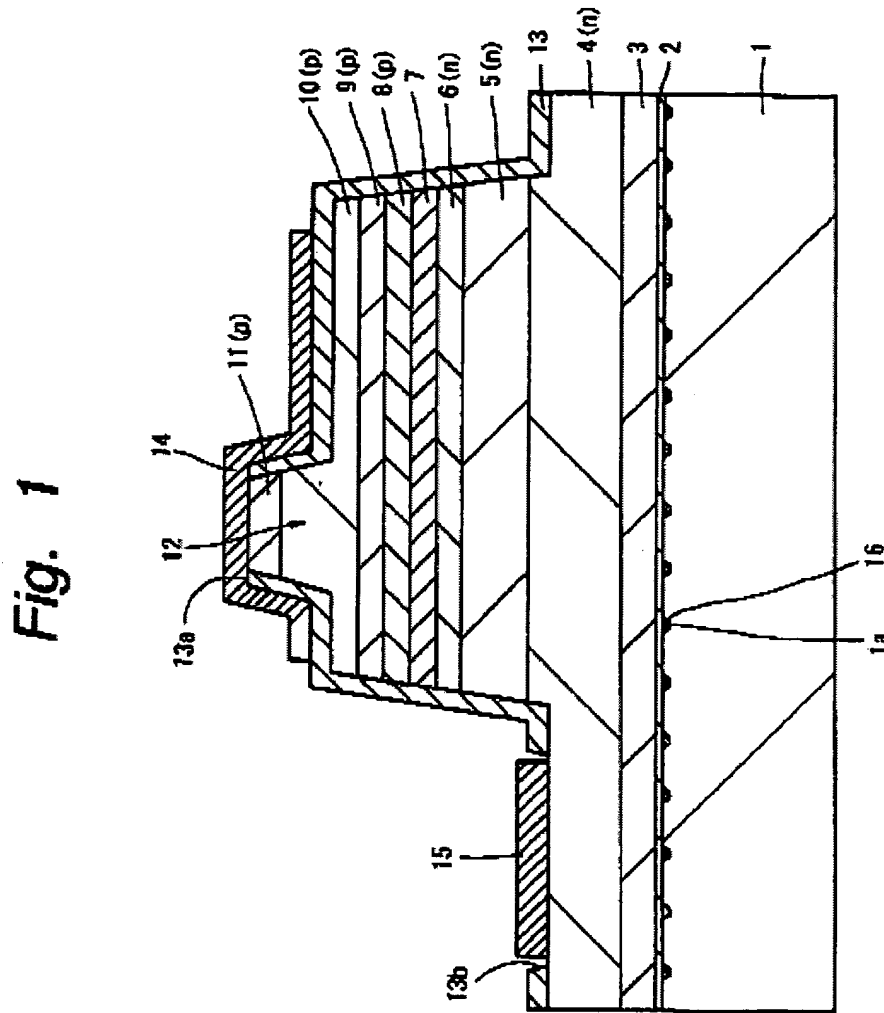
2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-3, 7-13, 15-16, 18 are rejected under 35 U.S.C. 102(a) as being anticipated by Morita (US patent 6,232,623 B1).

With respect to claims 1, 11 and 12, Morita discloses a semiconductor device on a sapphire substrate comprises a GaN semiconductor laser includes a sapphire substrate (1), recesses (1a), a GaN buffer layer (2), a ridge portion (12), insulating film (13) has formed an opening (13a, 13b), undoped GaN layer (3), the n-type GaN contact layer (4n), AlGaIn cladding (5n), the n-type optical guide (6n), the active layer (7), p-type AlGaIn cap layer (8p), p-type optical guide (9p), AlGaIn cladding (10p), the p-type GaN contact layer (11), electrode (14, 15) AlGaIn crystal (16), note cols. 6-12, see fig 1.



With respect to claim 2, Morita discussed about the current blocking layer and the nitride based semiconductor containing at least one of indium, gallium, aluminum, boron and thallium, note cols. 8-12, see fig 1.

With respect to claim 3, Morita discloses the nitride based semiconductor laser (2), n-type cladding layer (5n), p-type cladding (10p) and ridge portion (12), note cols. 7-8, see fig 1.

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With respect to claims 7 and 15, Morita discussed about the second nitride based semiconductor laser is formed so as to cover a region above opening and a region on current blocking layer, note cols. 7-8, see fig 1.

With respect to claims 8 and 16, Morita discussed about the type electrode formed on second nitride based semiconductor laser, note cols. 7-8, see fig 1.

With respect to claims 9 and 10, Morita discussed about the current blocking layer having multi-layer or single layer structure, note col. 12.

With respect to claim 13, Morita discussed about the first nitride-based semiconductor (2), n-type cladding layer (5n), p-type cladding (10p), note col. 7, see fig 1.

With respect to claim 18, Morita discussed about the plurality of nitride based semiconductor layers containing at least one of the indium, gallium, aluminum, baron and thallium, note cols. 12-13, see fig 1.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 4, 6, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morita (US patent 6,232,623 B1) in view of Kunisato et al (US patent 6,162,6560).

With respect to claims 4, 6 and 17, Morita discussed all above except for the current blocking layer contains aluminum, indium and gallium. Whereas Kunisato et al discussed about the current blocking layer contains aluminum, indium and gallium, note cols. 9 - 10. For the benefit of current blocking laser contains aluminum, indium and gallium, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Morita with the current blocking laser contains aluminum, indium and gallium as taught or suggested by Kunisato.

6. Claims 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morita (US patent 6,232,623 B1).

With respect to claims 5 and 7, Morita discussed about the upper surface of ridge portion, the first and second width, opening and current blocking layer. However Morita didn't discussed the width of current blocking layer is not less than 0.1 nor more than 0.95. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the first and second width of opening of current blocking layer, since it has been held that discovering an optimum value of a result effect variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

***Citation Of The Pertinent References***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The patent to Okumura (US patent 6,370,176 B1) discloses gallium nitride group semiconductor laser device and optical pickup apparatus

The patent to Hayashi et al (US patent 6,319,742 B1) discloses method of forming nitride based semiconductor laser.

The patent to Hata et al (US patent 6,320,209 B1) discloses epitaxial lateral overgrowth of gallium nitride based semiconductive oxide selective growth mask and method for fabricating the same.

The patent to Yoshida et al (US patent 6,303,405 B1) discloses semiconductor light emitting element and its manufacturing method.

The patent to Tsuda et al (US patent 6,294,440 B1) discloses semiconductor substrate light emitting device and method for producing the same.

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***Communication Information***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan M Nguyen whose telephone number is (703) 306-0247. The examiner can normally be reached on 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 306-5511 for regular communications and (703) 306-5511 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-3329.



Paul Ip  
SPE  
Art unit 2828

TMN  
July 9, 2002